

**PALEONTOLOGICAL FIELD SURVEY OF UTAH
STATE LAND IN GRAND COUNTY, UTAH
(SW1/4 Sec. 2, T24S, R20E and
E1/2, SE1/4 Sec. 3, T24S, R20E)**

for

**James Wesley Hill
Moab, Utah**

by

**Wade E. Miller, Ph.D.
2871 Indian Hills Drive
Provo, Utah 84604**

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Paleontological Field Survey Report for James Wesley Hill

INTRODUCTION

On May 24, 1994, Wade E. Miller, consulting paleontologist, received a telephone call from James W. Hill requesting a paleontological field survey of certain State Land in Grand County, Utah. The State Land leased by Mr. Hill, and surveyed by Dr. Miller on June 3-4, 1994, is recorded on his lease as the SW1/4, Section 2, Township 24 South, Range 20 East and the East 1/2 of the SE1/4, Section 3, Township 24 South, Range 20 East. Mr. Hill's intent is to use numerous exposed clasts of a fine-grained reddish sandstone for tiles and other decorative rock by cutting and polishing them in Moab, Utah. As explained to me by Mr. Hill, no extensive quarrying will be done to obtain this rock which occurs in the area in discontinuous outcrops, 1 - 2 feet thick, near the base of existing slopes. This rock would be removed by hand into pickup trucks from the immediate area. In so doing there would be negligible impact.

The entire leased area appears to be within the lower Cretaceous Burro Canyon Formation (at one time thought to be upper Morrison Formation). Approximately 260 feet of relief, between 4,750 and 5,010 feet in elevation, marks the difference between sandstone capped ridges and the valley floor. These ridges, some reduced to buttes and small rounded hills, are capped by a gray to brown channel sandstone which shows typical crossbedding and a spectrum of poorly sorted to well sorted grains. They are covered by a poorly developed desert soil which blankets much of their upper surface and which sustains a sparse vegetative cover. Flat topped ridges dominate the southern portion of the leased land. The capping sandstone unit is from 4 - 6 feet thick. Beneath this unit lie slopes of mudstone/claystone that constitute the bulk of the Burro Canyon Formation in the area. Some discontinuous sandstone lenses occur in these, including the reddish fine-grained unit to be cut and polished for commercial use. Downslope, and essentially northward, the mudstone slopes grade into alluvial outwash. In this area it forms an hammada. The leased State Land occurs on the southernmost portion of the Klondike Bluffs and the

northernmost portion of the Merrimac Butte 7.5' U.S.G.S. provisional topographic maps.

FIELD SURVEY

The leased area as defined above was carefully surveyed on foot. Although the northern outwash portion of the land was inspected, especially in existing washes, most attention was given to the sandstone and mudstone/claystone exposures. Slopes were first inspected near their bases and then traversed up to the capping sandstone. Petrified wood is common throughout the entire area. Its source appears to be entirely within the capping sandstone unit. Upon erosional retreat of this unit, fragments are left along with contained stream clasts and sandstone fragments of this capping sandstone. Even the petrified wood in situ was fragmented, leading to the conclusion that the fragmentation occurred before fossilization. Apparently, broken parts of trees floated in the ancient stream, became waterlogged, then sank to be buried by stream sediments. This later all petrified and lithified. Some agate (and possibly all) in the area represents petrified wood in which structural features have been lost. Minimal evidence for trace fossils was found as worm burrows at the base of the capping sandstone -- where this unit consisted of fine, well sorted, fissile sandstone. Among the residual rock fragments produced by the eroding sandstone caprock were possible dinosaur gastroliths. These rounded, smooth and somewhat pitted stones are uncommon on the ground surface. They range in maximum diameter from one to four inches. None were found in situ and their origin is equivocal.

RECOMMENDATION

Although the State leased land described above is only two miles north of Brigham Young University's Dalton Well Dinosaur Quarry, no evidence of dinosaur bone was found after a very thorough inspection. And as indicated, the stones resembling gastroliths are equivocal. The trace fossils (worm burrows) found are not regarded as important, nor is the petrified wood, which is fairly common in the area. Fragments of petrified wood are common throughout terrestrial Mesozoic deposits in southern Utah. Only when in situ material, especially leaves and fruiting

structures/seeds, is present would the fossils be considered important.

There is no paleontological reason why Mr. James W. Hill should not be enabled to remove the rocks described above and in the manner indicated. Any paleontological impact would be essentially nil. However, in the event he or any other worker discovers fossil bone in the area, it should be reported to the proper authority without delay.